

# Not Enough Folate? You Might Find That Depressing

**A**n ARS-funded study published this year revealed details about associations between low folate levels and various stages of depression. The study was based on sample data taken from an ethnically diverse population.

Folate is one of the B vitamins and is found in green, leafy vegetables. It is actually a family of related compounds and includes folic acid, which is the major synthetic form of folate used by food processors to fortify foods. Different folates are absorbed by the body at different rates, and not all folate consumed is absorbed by the body. For instance, alcohol, certain medications, and anemia can reduce the body's ability to absorb, and therefore use, folate.

Epidemiologist Martha Savaria Morris and four colleagues used data gathered on folks aged 15-39 years to examine associations between folate levels and history of depression. Morris is with the Nutritional Epidemiology Program at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University in Boston, Massachusetts.

A diagnostic interview questionnaire was used to assess lifetime depression in more than 3,000 people. The data showed that 2,626 of those had no depression, 301 had major depression, and 121 had chronic low-level depression, called dysthymia. Tests to measure folate in red blood cells and serum were conducted as part of the study.

The scientists found that those with either major or low-level forms of depression had lower concentrations of folate in their bloodstreams than did those who had never been depressed.

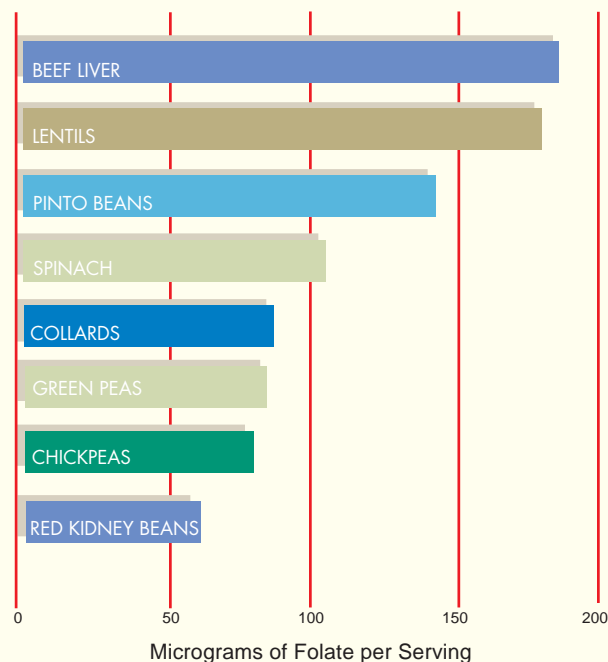
In addition, an interesting chronological pattern emerged. The lowest folate levels were observed in study participants who had had a major depressive episode lasting at least 2 weeks but had more recently been free of depressive symptoms for between 6 months and 1 year.

"This was a surprise, because our hypothesis was that low folate status causes depression. But the data tends to suggest that folate levels drop after the onset of depressive symptoms," says Morris. "The study's not definitive, so we don't know for sure yet which is the cause and which the effect. But people who have major depression should have their folate checked, and if it's low, they need to correct it." Morris also says folate supplementation may be appropriate during the year following an individual's depressive episode.—By **Rosalie Marion Bliss**, ARS.

*This research is part of Human Nutrition, an ARS National Program (#107) described on the World Wide Web at [www.nps.ars.usda.gov](http://www.nps.ars.usda.gov).*

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## Good Sources of Dietary Folate



Natural Food Sources of Folate	Serving Size
Beef liver, cooked, braised	3 ounces
Lentils, boiled (not canned)	1/2 cup
Pinto beans, canned	1/2 cup
Spinach, canned, drained	1/2 cup
Collards, boiled, drained	1/2 cup
Green peas, canned	1/2 cup
Chickpeas, canned	1/2 cup
Red kidney beans, canned	1/2 cup

Source: National Nutrient Database, Release 16, ARS Beltsville Human Nutrition Research Center, Nutrient Data Laboratory, Beltsville, Maryland.

## Facts About Folate

Since 1998, all enriched cereal grain products in the United States, such as bread, pasta, flour, breakfast cereal, and rice, have been required by the U.S. Food and Drug Administration to be fortified with folate. Individual expert estimates indicate that U.S. adult consumers may gain a range of 80 to 200 micrograms of additional folate daily as a result of the fortification program. The recommended daily allowance for folate is at least 400 micrograms per day for adults and 600 micrograms per day for pregnant women.